



1.2kV & 1.7kV Generation 5 Trench Gate M1 IGBT Range

Efficient and Reliable Operation in Severe Environments



Dynex M1 Trench gate IGBTs are insulated gate bipolar transistor (IGBT) modules with enhanced field stop and implantation technology.

The range incorporates an electrically isolated base plate and low inductance construction, that enables circuit designers to optimise circuit layouts and utilise grounded heat sinks for safety.

The low voltage IGBTs are designed and manufactured for applications within the electric vehicle, industrial, solar and wind renewable energy and traction markets.

This product offers a number of benefits for end-user applications inclusive of; reduced system cost, improved thermal characteristics, maximised system efficiency and reliable operation in severe environments.

What are the M1 package dimensions?

The M1 package scales 152 x 62 x 11mm and weigh 345g

What are the suitable operating temperatures?

The range has an enhanced chip junction temperature operating range from -40°C to a maximum junction temperature 150°C

Key Features:

- ✓ 5th generation TMOS + Trench Gate IGBT chip technology
- ✓ Cu Base with enhanced Al₂O₃ substrates
- ✓ High thermal cycling capability
- ✓ 10µs short circuit withstand
- ✓ Low E_{ON} E_{OFF} variant
- ✓ Compact module
- ✓ Built-in NTC resistor
- ✓ Low thermal resistance
- ✓ Excellent switching performance

Applications

- ✓ Motor Drives
- ✓ Power Charging Equipment
- ✓ Renewable Energy
- ✓ Electric Vehicles
- ✓ High Reliability Inverters
- ✓ Auxiliary power supplies

1200V IGBT Modules

Part Number	Configuration	Production Status	IC (A)	at T _C (°C)	VCE (sat) @ T _C =25°C (V)	Total E _{sw} @ T _C =125°C (mJ)	R _{th(j-c)} (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
DIM450M1HS12-PB500	Half Bridge	MP	450	100	1.65	74	52	152 x 62	2.5kV	TSPT
DIM600M1HS12-PC500	Half Bridge	MP	600	100	1.85	109	49	152 x 62	2.5kV	TSPT

450A M1

Key parameter	Test Condition	Dynex
*VCE (sat) /V	T _{vj} =25°C, VGE = 15V, I _c = 450A T _{vj} =125°C, VGE = 15V, I _c = 450A	1.65 1.95
*VF/V	T _{vj} =25°C, VGE = 15V, I _c = 450A T _{vj} =125°C, VGE = 15V, I _c = 450A	1.65 1.75
EON/mJ EOFF/mJ Erec/mJ	I _c = 450A, VCE = 900V, VGE = ±15V, RG(ON) = 3.3Ω, RG(OFF) = 3.3Ω	34 105 55

600A M1

Key parameter	Test Condition	Dynex
*VCE (sat) /V	T _{vj} =25°C, VGE = 15V, I _c = 450A T _{vj} =125°C, VGE = 15V, I _c = 450A	1.85 2.15
*VF/V	T _{vj} =25°C, VGE = 15V, I _c = 450A T _{vj} =125°C, VGE = 15V, I _c = 450A	1.90 2.10
EON/mJ EOFF/mJ Erec/mJ	I _c = 450A, VCE = 900V, VGE = ±15V, RG(ON) = 3.3Ω, RG(OFF) = 3.3Ω	31 84 42

1700V IGBT Modules

Part Number	Configuration	Production Status	IC (A)	at T _C (°C)	VCE (sat) @ T _C =25°C (V)	Total E _{sw} @ T _C =125°C (mJ)	R _{th(j-c)} (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
DIM450M1HS17-PA500	Half Bridge	MP	450	95	1.8	265	55	152 x 62	3.4kV	TSPT
DIM600M1HS17-PA500	Half Bridge	MP	600	100	1.8	244	46	152 x 62	3.4kV	TSPT

450A M1

Key parameter	Test Condition	Dynex
*VCE (sat) /V	T _{vj} =25°C, VGE = 15V, I _c = 450A T _{vj} =125°C, VGE = 15V, I _c = 450A	2.10 3.00
*VF/V	T _{vj} =25°C, VGE = 15V, I _c = 450A T _{vj} =125°C, VGE = 15V, I _c = 450A	2.05 2.2
EON/mJ EOFF/mJ Erec/mJ	I _c = 450A, VCE = 900V, VGE = ±15V, RG(ON) = 3.3Ω, RG(OFF) = 3.3Ω	86 190 105

600A M1

Key parameter	Test Condition	Dynex
*VCE (sat) /V	T _{vj} =25°C, VGE = 15V, I _c = 600A T _{vj} =125°C, VGE = 15V, I _c = 600A	1.80 2.20
*VF/V	T _{vj} =25°C, VGE = 15V, I _c = 600A T _{vj} =125°C, VGE = 15V, I _c = 600A	1.85 2.10
EON/mJ EOFF/mJ Erec/mJ	I _c = 450A, VCE = 900V, VGE = ±15V, RG(ON) = 3.3Ω, RG(OFF) = 3.3Ω	67 194 209